

Investigations on Odour Retention Characteristics of Textiles.

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The present study is designed to evaluate the influence of textiles on the odour retention characteristics. Commercially used textile fabrics made of cotton, viscose, linen, nylon, cotton/polyester (60/40) and 100 % polyester were used for wear trial. Cotton knitted fabrics made of three different thicknesses were selected based on their commercial importance. The effect of different structures on odour formation was analysed. It was found that the structure with high thickness had the high odour intensity rating and the least value was observed for thinner structure. High-performance liquid chromatography (HPLC) analysis was done to confirm the presence of these components in Terminalia chebula. The in-vitro antibacterial test by agar diffusion test was conducted for finished textile samples and it was observed that, the treated textiles material have the potential antibacterial property against wide spectrum of odour causing strains.

The Box and Behnken design was adopted to study the effects of these parameters on the effectiveness of extraction in terms of in-vitro antibacterial activity of treated textile against odour causing bacterial strains. The optimized extraction conditions were taken for the odour retention study. The results revealed that, the odour intensity in all the textile fabrics reduced significantly after terminalia chebula finishing process. The odour reduction in the terminalia chebula finished fabrics was characterized objectively using GC/MS. The GC/MS analysis of terminalia chebula extract finished textile showed comparative reduction in odourous components after wear trial than the untreated. These findings suggest that the active components in the herbal extract acted as antibacterial components and controlled the growth of bacterial species and thus reduced the metabolism of bacterial strains. Hence, the formation in the odour was considerably less in terminalia chebula finished fabric than the unfinished fabric.